ELLEN ZHANG

PRODUCT DESIGN PORTFOLIO

2016

Technical Thinking

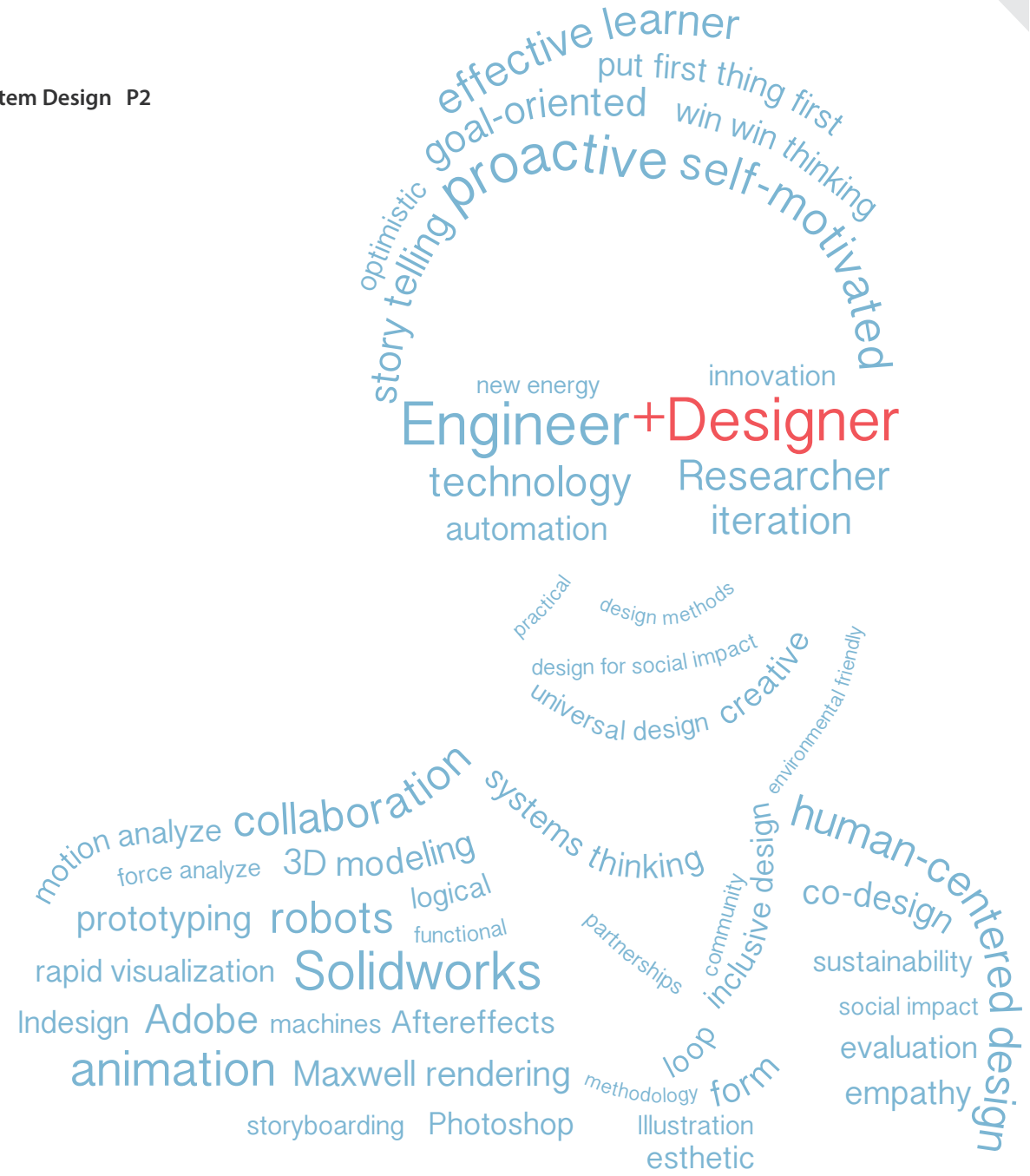
Design Thinking

I am a
product designer
with balanced thinking, which
allows both technical and creative approaches
to challenges. I am able to contribute not only essential
designing and engineering skills, but also creativity to a team.

Practical Experience

Human-centered Design

Previous Work

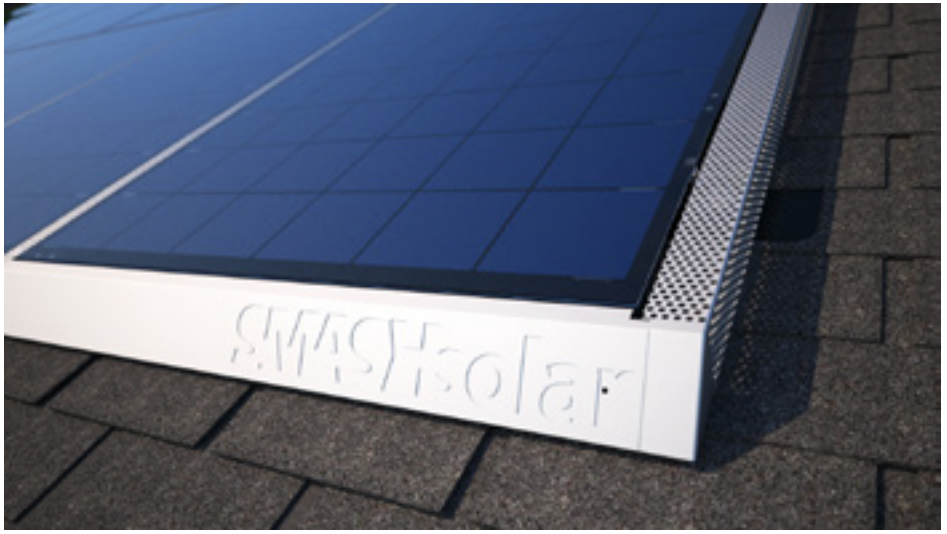


PRACTICAL EXPERIENCE

Real world projects require the balance of time, cost, and scope to achieve the best quality. And variety tasks require different methods and skills to reach the best result. I'm a practical designer who do my best in every job no matter complicated or simple.

Architecturally Integrated Solar Mounting System Design

cooperated with SMASHsolar

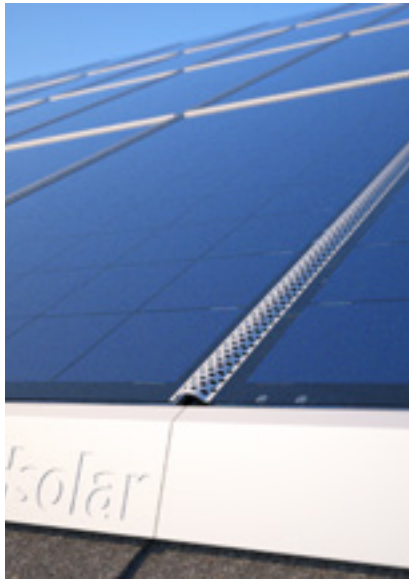


This innovative design aimed to explore the architectural and visual relationship between solar panels, house roofs and the environment, challenging the traditional way of roof top solar panel installation which was just dumping unrelated devices on the roof.

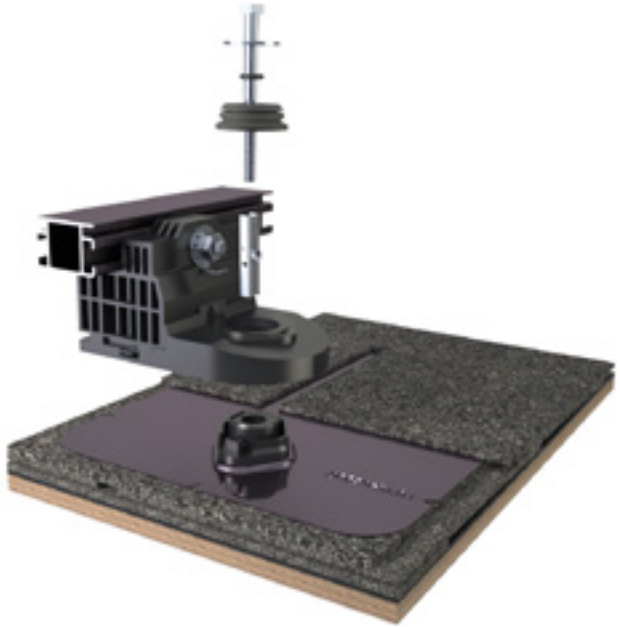
My duty included:

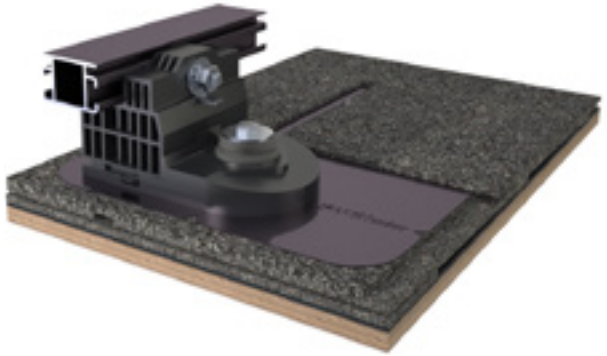
-High impact product renderings
-Assembling graphics and videos
-Basic trim system designs
-Concept ideation and presentation

Top Trim Designs



Modules Assemble Animation: https://vimeo.com/166173229





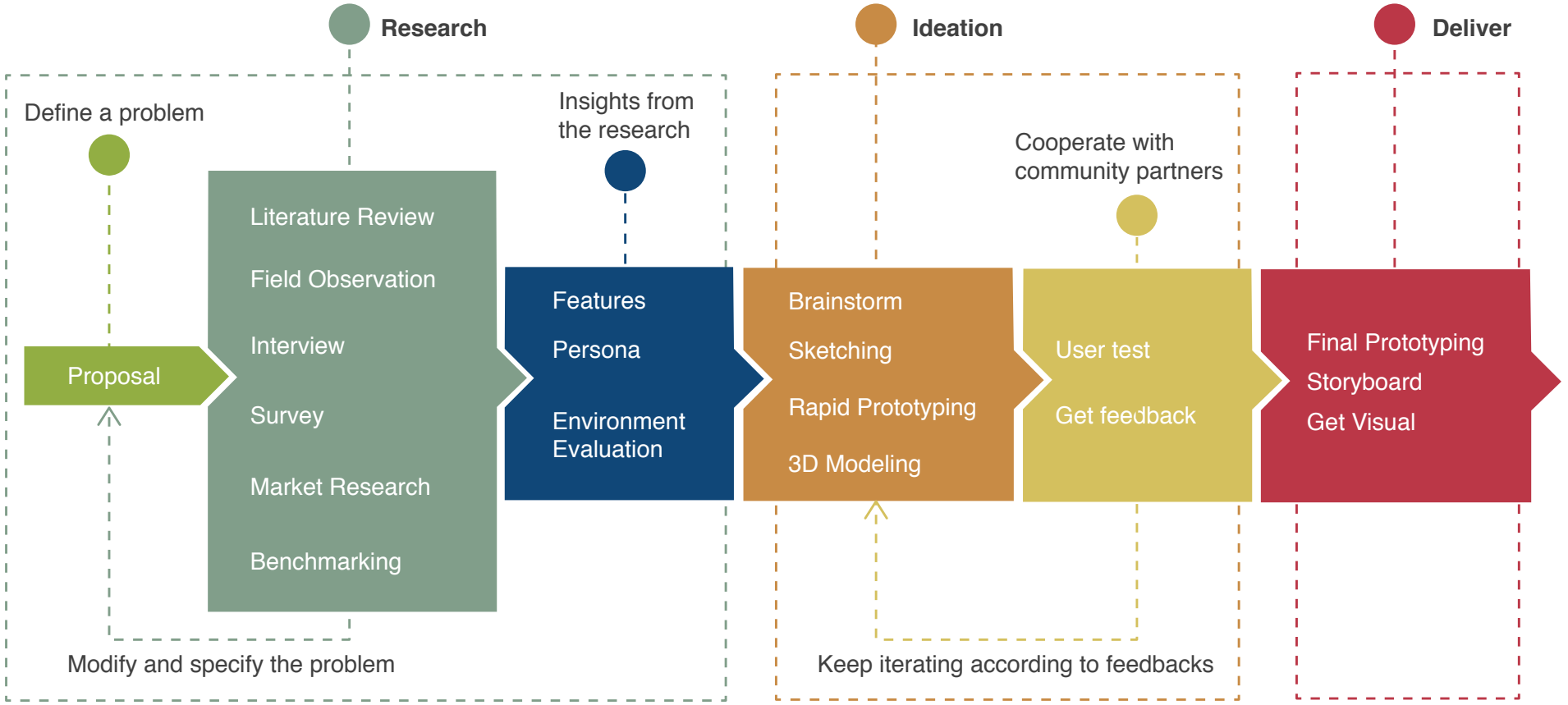
Foot Assemble Animation: https://vimeo.com/170599727

HUMAN-CENTERED DESIGN

Designers suppose to create better experience for people rather than build isolated objects. Human-centered design thinking methods are frequently used in my works. I'm a considerate designer who keeps responsibility in mind.

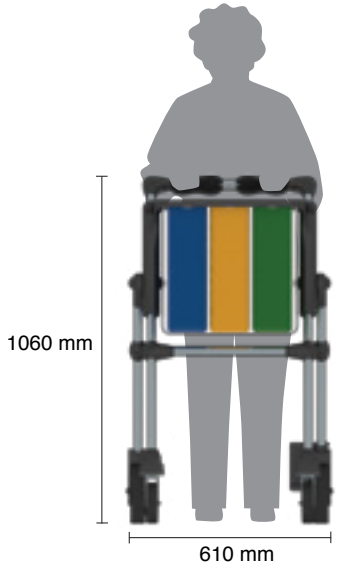
Design Thinking Process

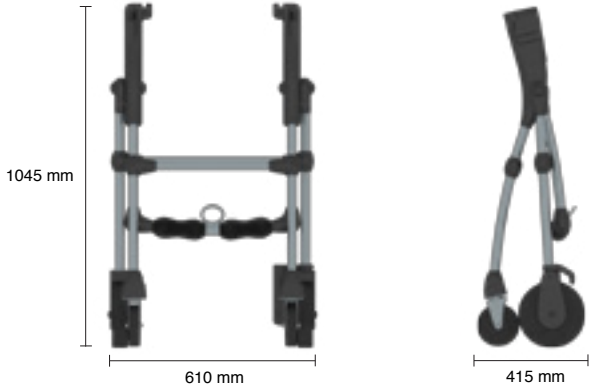
This chart shows the design process and methods used in the following project. Similar processes were also used in all other projects.

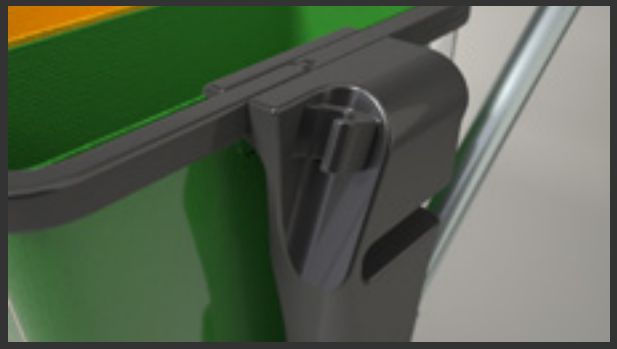


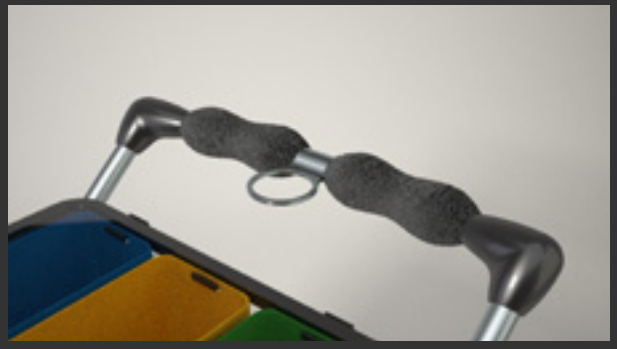
“The Jolly Trolley”
- Enhancing the Shopping Experience for Seniors

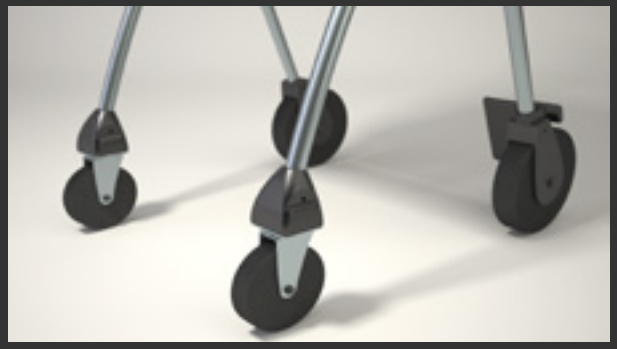
This research-based design project deals with the problems entailed in grocery shopping for seniors with ambulatory disabilities in terms of navigating through the store with shopping carts and transporting heavy groceries home.



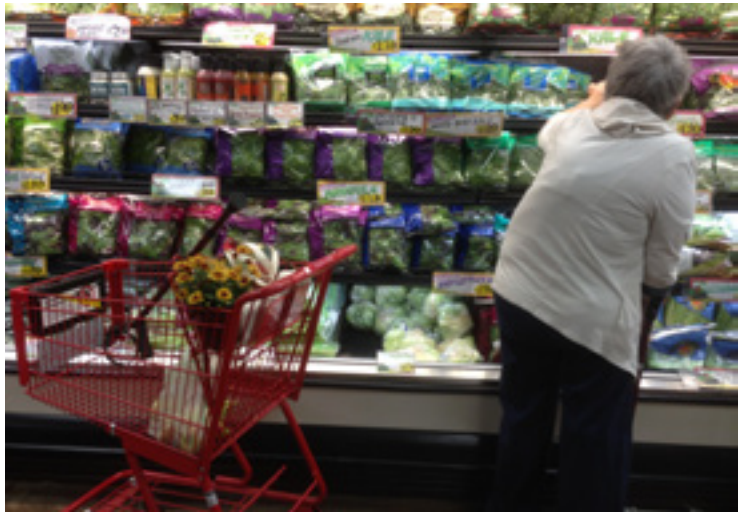


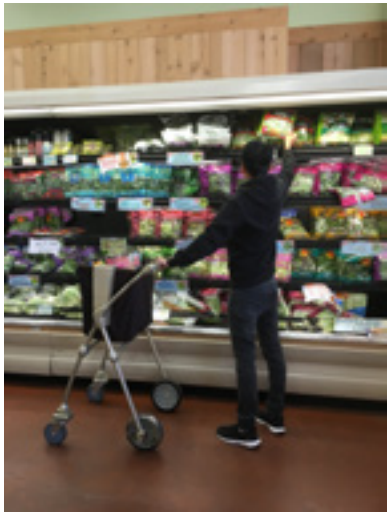






Human was involved in every stage of the design. Empathy was the key to understand the users' real needs during interview and observation. Building a partnership with users helped to get feedback and iterate the design. Field test with a full sized prototype gave more tangible feeling about the design.





Hands-free Walker

Walkers in the market are almost the same, so they cannot fulfill the variety demands of people who need a walking assist. All of them require people to use hand to hold or push them. It makes the user to walk in an awkward gesture, and cannot prevent falling one hundred percent. They use straight mental pipes as frames, which is too strict and not appealing.

This walker has the following functions:

Attaching on the waist, move with person without hands holding.

Four wheels enable rolling smoothly.

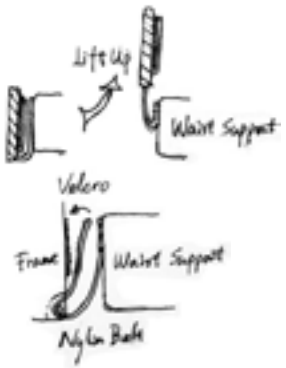
Wheels can draw back into the legs while being pushed.

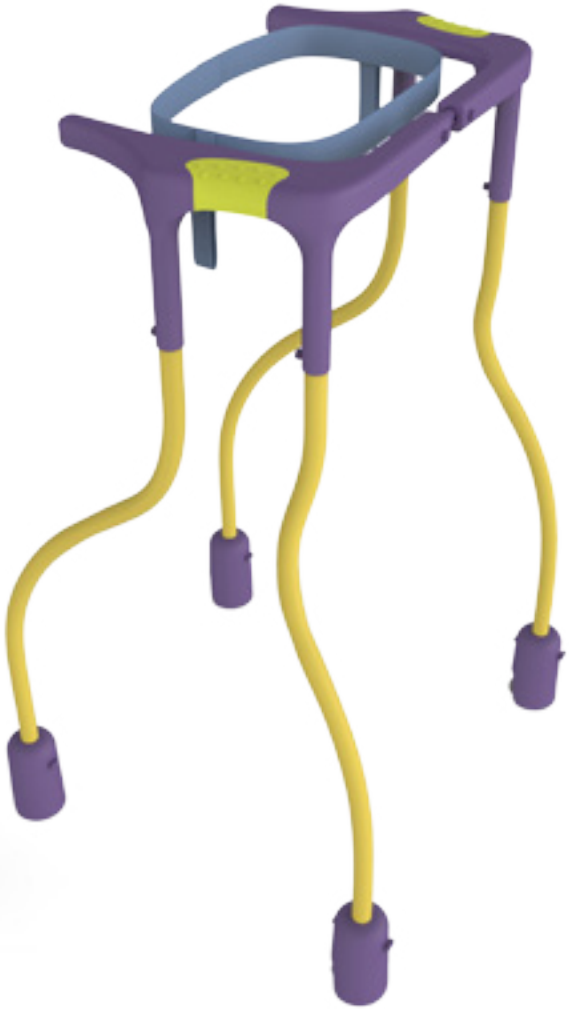
After wheels draw back, it can stand stable on the ground, prevent people from falling down.

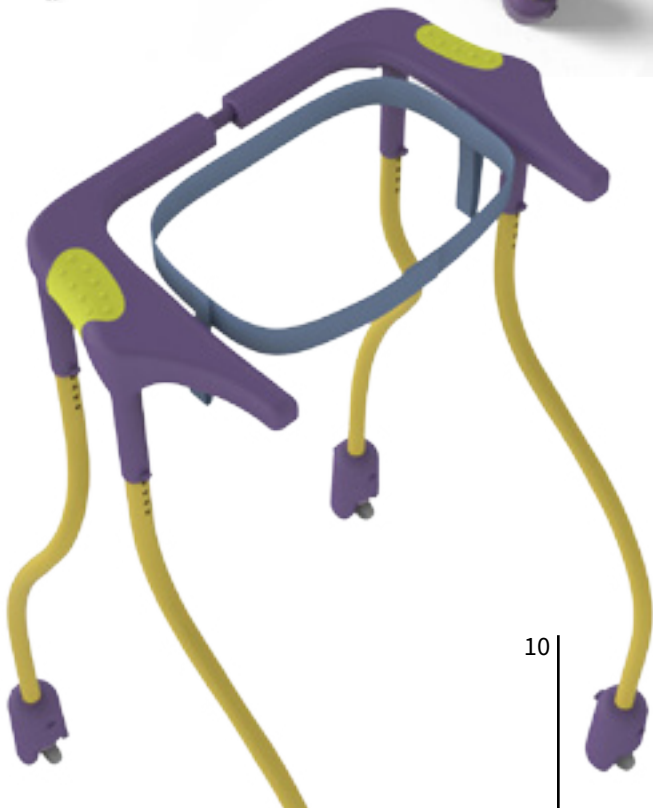
Width and height are adjustable.

Free between waist support and the frame in a certain range.

The walker can be lifted up, enabling walking up and down stairs and buses.







Sharp Disposal Project

Used sharps carry dangerous virus and bacteria. If they are not disposed properly, people can be stabbed by accident and be infected by incurable diseases. A huge number of health-care workers, as well as unexpected people are infected by used sharps every year all over the world. This project will develop a sharp disposal container instruction to help prevent sharp accident from happening.

Many people who use sharps at home and who works in small clinics lack the knowledge of how to dispose sharps properly or lack the accesibility to standard containers and service system, especially in developing countries. How to reduce the number of people who is exposed in the dager of being injured by sharps remains a challenge.

Sharp injuries attribute a huge number to the infections among health-care workers according to Worlds Health Organization statistics.

Storyboard

A nomal day for the clinic, busy as usual.

Wenjuan is giving shots to patients.

There are many unused syringes and medicines on the table.

Used ones are thrown in the cardboard box with no cover.

When Wenjuan is taking the sharp disposal box out to the waste storage place, a needle stick out the cardboard and stab her hand.

She got sick because of the stick. Fortunately, it's a curable disease and she recoverd after a week.

The clinic invited a professor to give a lecture on the proper way to dispose sharps and how to choose the right container.

The material of the container should be hard and thick enough that couldn't be penertrated by sharps.

Alternative Sharp Disposal Container

An Instruction of choosing the proper container

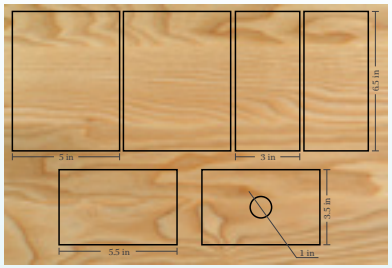
- Basic Features of Household Sharp Containers

Made of a heavy-duty plastic, wood, or metal, which couldn't be penetrated by sharps
Able to close with a tight-fitting, puncture-resistant lid, without sharps being able to come out
Upright and stable during use
Leak-resistant
Properly labeled to warn of hazardous waste inside the container

- Heavy-duty Plastic Bottles

- Metal Boxes

- Make a Wooden Box



Cut the pieces out from a 0.25 in thick wood board.

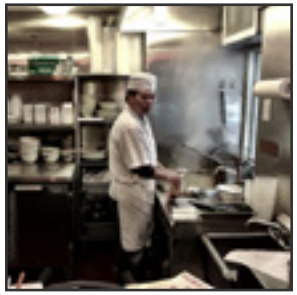
Glue and nail them together to be a box.

- Use tapes to wrap up the box after it's about three-quarters (3/4) full, and ensure no one can open it again. Dispose it properly following the community guidelines.

A flyer with instructions of making a sharp disposal container from cheap and accessable material.

Other Projects

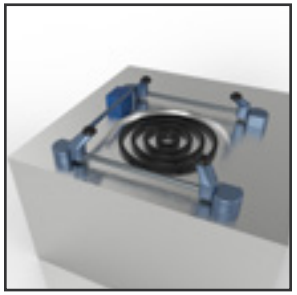
Health Prevention Program Among Middle-aged Asian in San Francisco

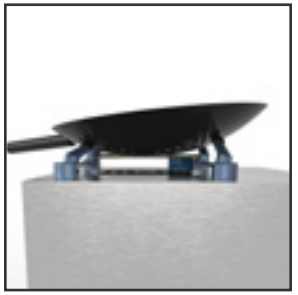


Chefs working in Chinese restaurants were easy to have occupational diseases in arms, because they have to frequently lift heavy pots. It was a huge stress in arms, and when they were busy, they have no time to rest.

The proposed design was a labor saving device. It was simple, easy to use and single functional, which helps to save the labor from most intense step of cooking. It promoted the idea of “An ounce of prevention is worth a pound of cure.”

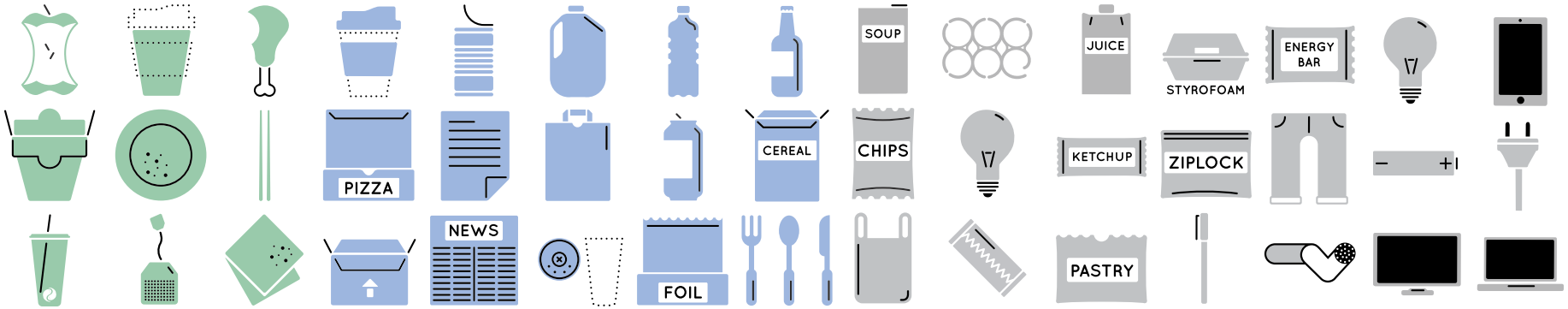







Branding Project with Sustainable SF State

This group project involved the design of logo, icon library, bin signage, infographic, and promotional materials cooperated with Sustainable SF State.



Redesign the 16th street station, Oakland

This is a concept design project to repurpose an abandoned train station into a new space. After research, the place was designed into a community center with a cafe, garden, park, and interactive indoor area, where local and non-local residents could gather together and join in events. The main structure of the building was remained. A mixture of glass, metal, and lights was used to fix and conceal the worn out construction from walls to stairs.



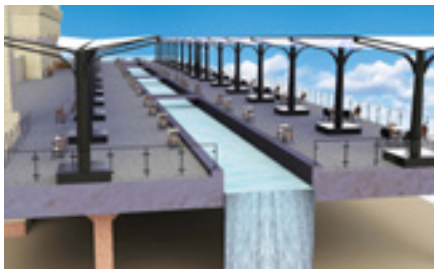






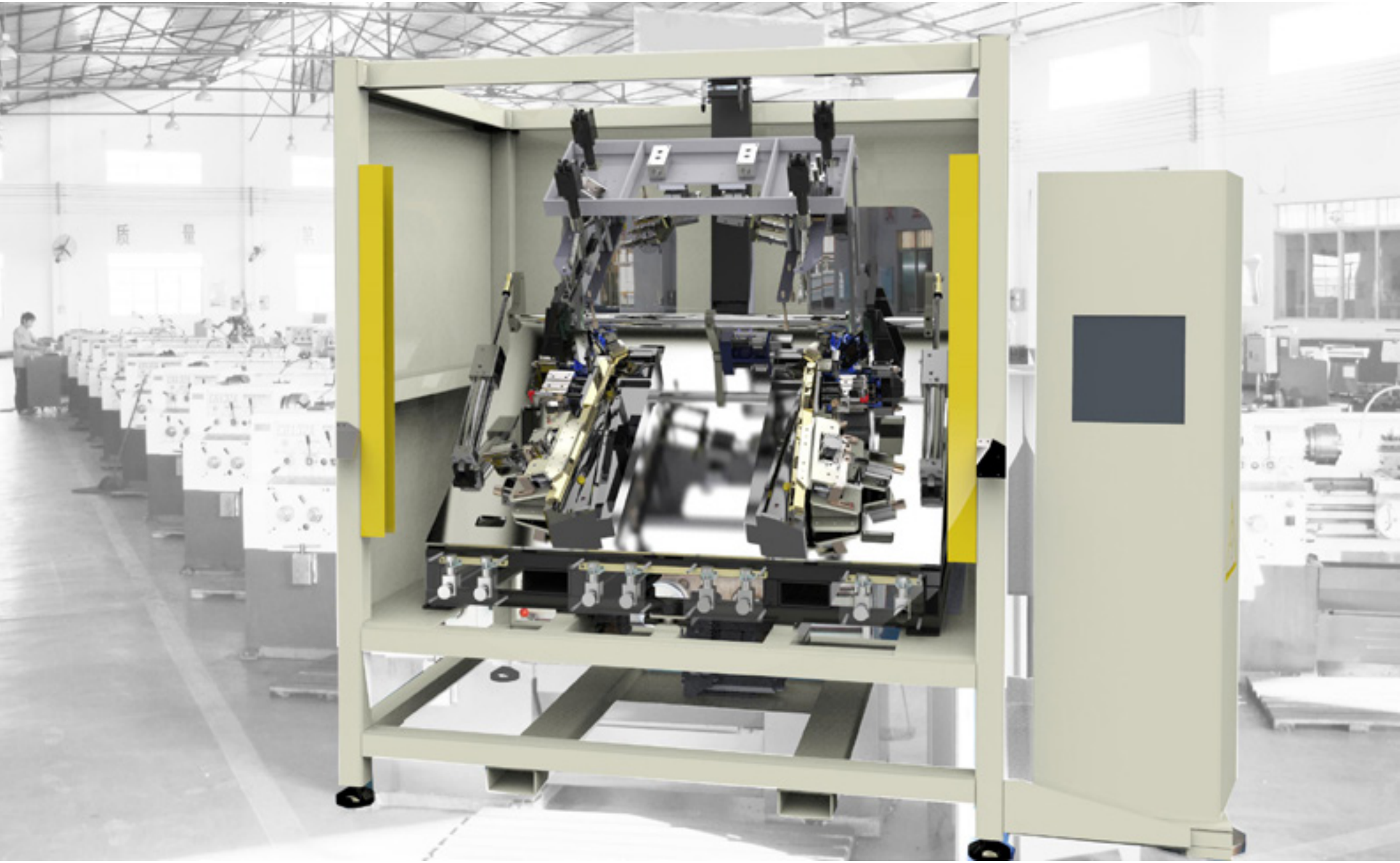






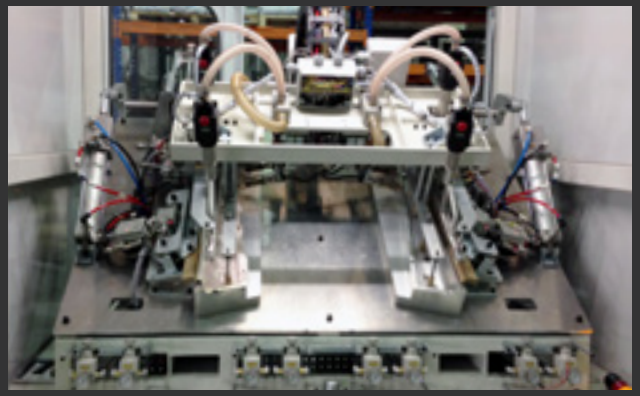
PREVIOUS WORK

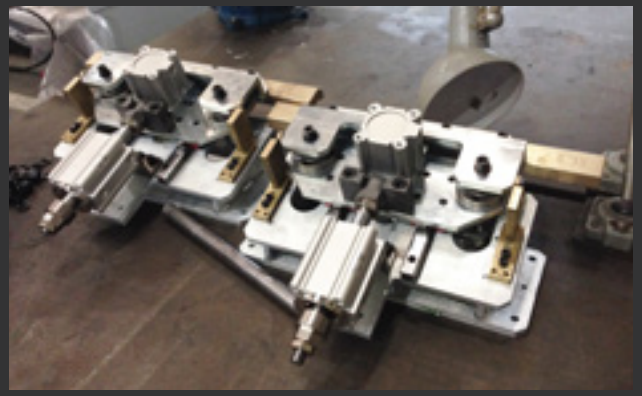
My previous experience of working as a mechanical engineer gives me a profound understanding of how things work and how products are manufactured. It is the foundation of my further quest as a product designer.



Welding and Edge Folding Machine

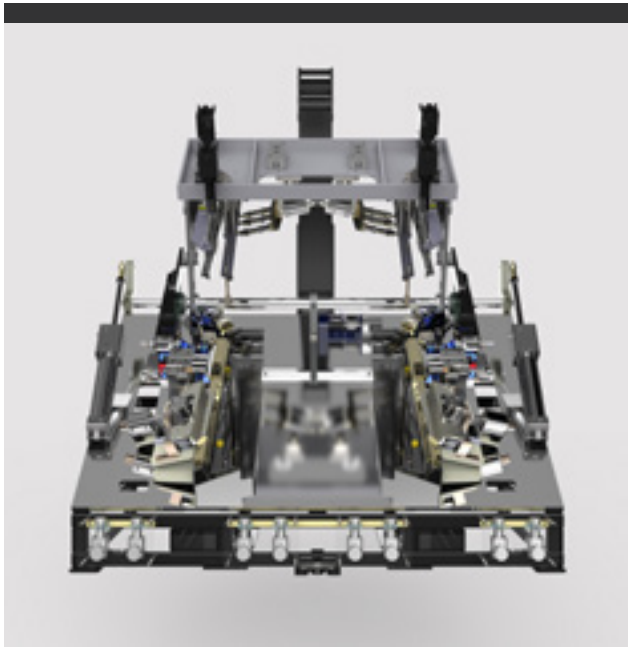
cooperated with Yanfeng

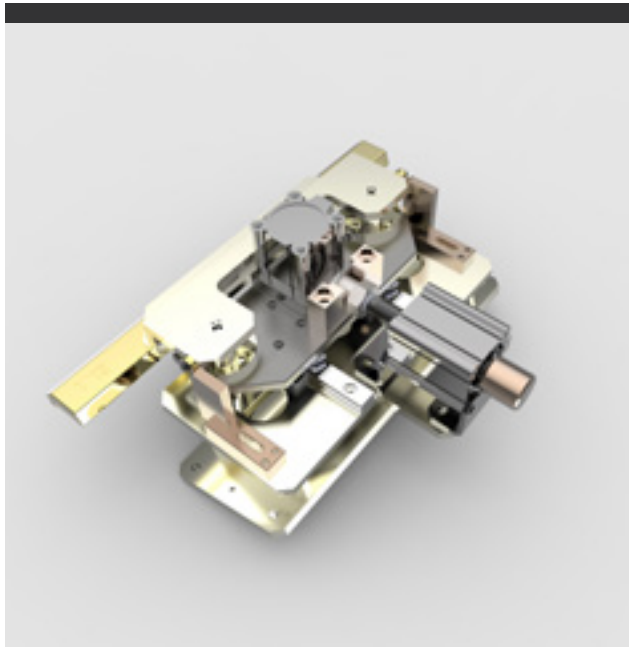




In-kind shotting

This was a design of a machine which was used to weld and fold edge of the door panels for an automotive factory. The edge folding units were specifically designed to mimic the motion of human hands.

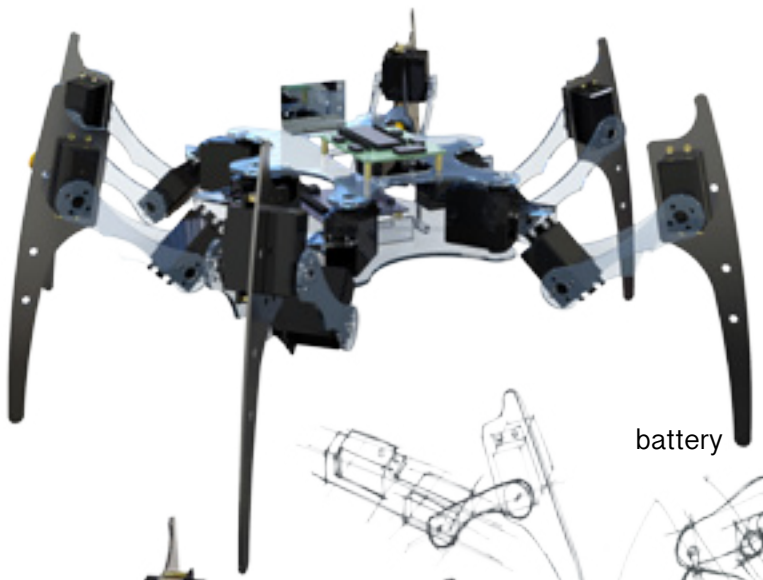


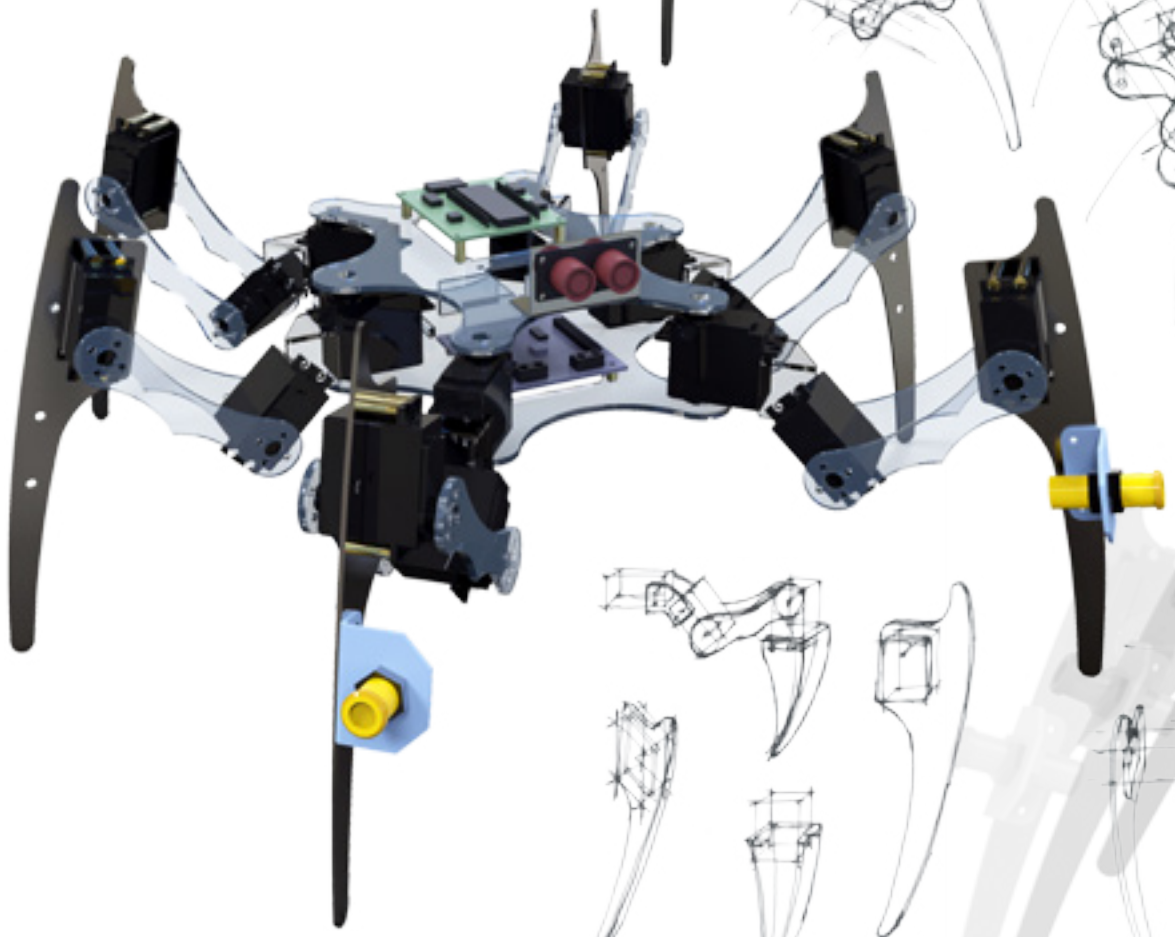


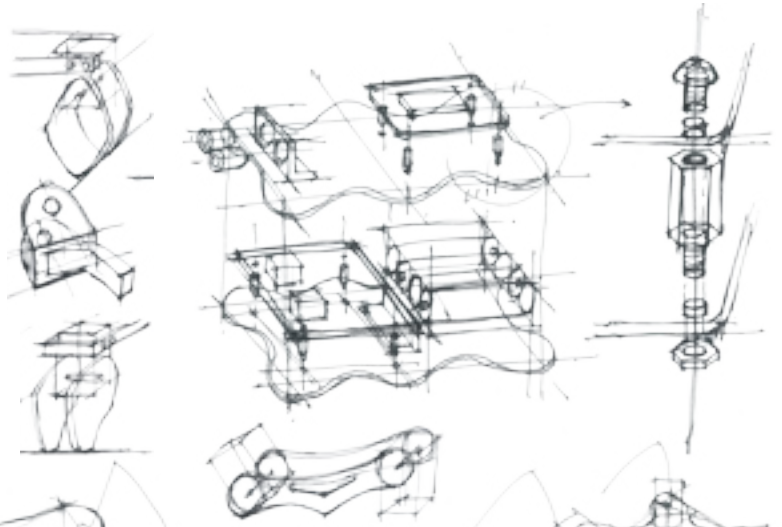
Hexapod Robot

This hexapod walking robot was made to study the flexible biomimetic gait and it could realize the function of avoiding obstacles while walking. It is a mechanical and electrical integration project.

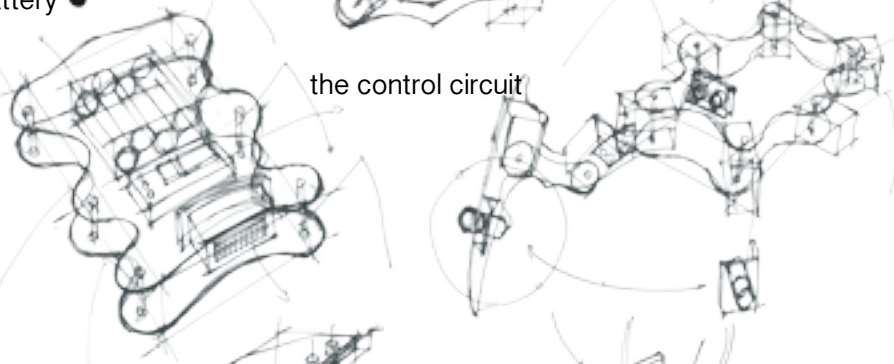
Intro video:
https://vimeo.com/171633100



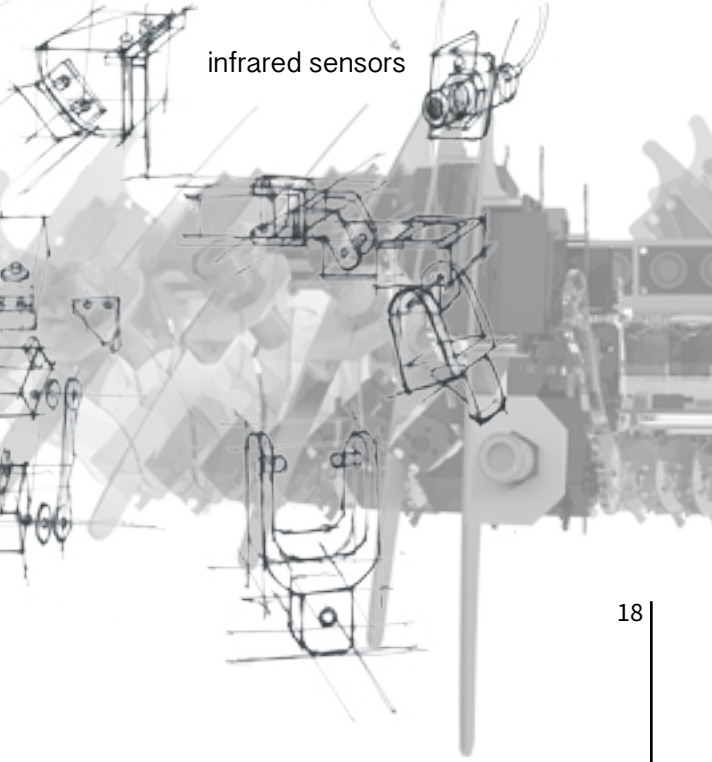




battery



the control circuit



infrared sensors